Syndromic Surveillance Event Detection of Nebraska (SSEDON)

HL7 Implementation Guide Syndromic Surveillance: Emergency Department and Urgent Care

HL7 version 2.5.1
Includes Emergency Department
Admissions, Registrations, and Updates

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This implementation guide contains descriptions of HL7 version 2.5.1 message type ADT (Admit/Discharge/Transfer) to be sent from hospital's emergency department visits and urgent care facility visits. These messages are sent to the Syndromic Surveillance Event Detection of Nebraska system as a part of the Nebraska Department of Health and Human services for syndromic surveillance purposes.

Introduction

Syndromic Surveillance is being established to enhance the Nebraska Department of Health and Human Services (NDHHS) Office of Epidemiology's ability to detect non-infectious and infectious causes of illness, community-wide disease outbreaks and bioterrorism events, and analyze chronic disease indicators. NDHHS will use chief complaint and clinical information from HL7 version 2.5.1 Admit-Discharge-Transfer (ADT) messages to provide an early warning system for public health emergencies, provide indicators for chronic disease surveillance and analysis, and provide general public health surveillance and analysis. The data collection portion of this system is called the Syndromic Surveillance Event Detection of Nebraska (SSEDON).

The Health Level Seven (HL7) Standard

The ANSI HL7 standard is widely used for data exchange in the health care industry. The full standard is quite lengthy, covering a variety of situations in patient care and health care finance and no single application is likely to use all of its content. This document covers the subset of HL7 that will be used for syndromic surveillance records exchanged between SSEDON and outside systems.

- The basic unit transmitted in an HL7 implementation is the **message**.
- Messages are made up of several **segments**, each of which is one line of text, beginning with a three-letter code identifying the segment type.
- Segments are in turn made up of several **fields** separated by a delimiter character, "|".

```
MSH|^~\&|NECARE|NEFACIL^9876543210^NPI||SSEDON|201102091114||ADT^A04|201102091114-0078|P|2.5.1
EVN||201102091114|||||NEFACIL^9876543210^NPI
PID|1||20060012168^^^^MR||~^^^^^S||19570923|F||2054-5^^CDCREC|^^^^65101|||||||||||H^^CDCREC|||||||N
PV1||E||E||||||||1|||||20110209_0064|||||||||||||||||||||||||||20110217144208
PV2|||^LOWER BACK PAIN
OBX|1|NM|11289-6^BODY TEMPERATURE^LN ||101|[degF]^F^UCUM|||||F|||20110114130658
DG1|1||8472^SPRAIN LUMBAR REGION^I9|||F
```

The details of how HL7 messages are put together, for SSEDON purposes, will be explained later in this document. The example above shows the essentials of what a message looks like. In this example, a message is being sent on behalf of NECARE to NDHHS. This message consists of six segments. NOTE: NECARE may or may not be the actual transmitter of the message.

- The Message Header segment (**MSH**) identifies the sender (**NEFACIL**) of the information being sent and the receiver **SSEDON**. It also identifies the message as being of type ADT**.** The ADT is an Admit-Discharge-Transfer, which is one of the message types defined by HL7.
- The Event Type segment (**EVN**) communicates the date and time the trigger event occurred and identifies the owner of the information. This is used to designate a parent-child relationship. The parent (sending) facility would be identified in the MSH segment and the child (data owner) facility would be identified in the EVN segment
- The Patient Identification segment (**PID**) provides patient identification information as allowed by HIPPA and demographic information. For security reasons personal identifiers outside of the treating facility setting are not to be used. Patient name, address, social security number or any other information specifically identifying any unique person outside of the health care facility setting is not to be used here. Even though the patient name field is used because of HL7 requirements, no patient name or alias is to be used.
- The Patient Visit segment (**PV1**) provides information unique to the patient visit to the care facility such as visit identifier and date and time of admission.
- The Patient Visit Additional Information segment (**PV2**) provides chief complaint information.
- The Observation segment (**OBX**) is primarily used to carry key clinical observation/results reporting information within a patient's message.
- The Diagnosis segment (**DG1**) is primarily used to carry primary, secondary and final diagnosis information with a patient's message.

HL7 does not specify how messages are transmitted. It is flexible enough to be used for both real-time interaction and large batches. The standard defines file header and file trailer segments that are used when a number of messages are gathered into a batch for transmission as a file. SSEDON will use batch files of messages to communicate with outside systems.

Scope of This Document

The General Transfer Specification (GTS) documented here supports automated exchange of data between the SSEDON repository and outside systems. This allows both the patient and clinical information to be available in both systems, so as to avoid the need to enter data twice. The remainder of this document specifies how HL7 file messages are constructed for the purposes of SSEDON. It covers only a small subset of the very extensive HL7 standard. Files of messages constructed from the guidelines in this document will fall within the HL7 standard, but there is a wide variety of other possible HL7 messages that are outside the scope of this document.

References

- See Version 2.5.1 of the Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is at www.hl7.org.
- The Public Health Information Network (PHIN) within the Center for Disease Control (www.cdc.gov/phin) has published an Implementation Guide for Syndromic Surveillance Data with the purpose of keeping the use of HL7 for syndromic surveillance data as uniform as possible.
- The Public Health Information Network (PHIN) with the Center for Disease Control has published a vocabulary access and distribution system at phinvads.cdc.gov.

Basic HL7 Terms

Table 1.1	Basic HL7 Terms
Term	Definition
Message	A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.
Segment	A segment is a logical grouping of data fields. Segments within a defined message may be required or optional and may occur only once or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique 3-character code.
Field	A field is a string of characters. Each field has an element name and is identified by the segment it is in and its sequence within the segment. Usage and cardinality requirements are defined in the Segment Definitions.
Component	A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are necessarily required to be populated.
Data Type	A data type restricts the contents and format of the data field. Data types are given a 2 or 3 letter code. Some data types are coded or composite types with several components. The applicable HL7 data type is listed in each field definition.

Delimiters	The delimiter values are given in MSH-1 and MSH-2 and are used throughout the message. The delimiters supported by SSEDON are:
	    | Field Separator
	    ^ Component Separator
	    & Sub-Component Separator
	    ~ Repetition Separator
	    \ Escape Character

Basic HL7 Data Types

The following Data Types have been used in the SSEDON HL7 Implementation Guide.

Table 1.2	Data types used in SSEDON Implementation Guide
Data Type Code	**Data Type Name**
CE	Coded element
CWE	Coded with exception
CX	Extended composite with check digit
DTM	Date/Time
EI	Entity Identifier
HD	Hierarchic Designator
ID	Coded value for HL7-defined tables
IS	Coded value for user-defined tables
MSG	Message Type
NM	Numeric
PT	Processing Type
SI	Sequence Identifier
ST	String Data
TS	Time Stamp
VID	Version Identifier

For Further definition of these data types, please reference HL7 Standard Version 2.5.1 located at www.hl7.org

Basic HL7 encoding rules

- Encode each segment in the order specified in the Message Structure
- Begin each segment with the 3-letter segment ID (for example "PV1").
- End each segment with the carriage return terminator (hex 0D). Note that in the examples in this guide, this character is illustrated as "<cr>". This character is a single ASCII character; the segment terminator is NOT the four-character sequence
- Encode the data fields in the sequence given in the corresponding segment definition tables.
- Encode each data field according to the data type format listed in this guide.
- Components, subcomponents or repetitions that are not valued at the end of a field need not be represented by component separators. Likewise, field separators are not required for empty fields at the end of a segment. For example the data fields and segments below are equivalent

```
        |^XXX&YYY&&^|       is equal to       |^XXX&YYY|
        |ABC^DEF^^|         is equal to       |ABC^DEF|

MSH|^~\&|DCC|NEHOSP|NDHHS|NEHOSP|20110127111604||ADT^A01|00069250|P|2.5|||AL|AL|US||||
                        Is the same as
MSH|^~\&|DCC|NEHOSP|NDHHS|NEHOSP|20110127111604||ADT^A03|00069250|P|2.5|||AL|AL|US
```

- If a data segment is not documented in this guide, the data segment should not be sent. However, if the segment is sent then segment must conform to HL7 guidelines for structure of the message and segment.. If the extraneous segment does not follow HL7 guidelines, SSEDON will reject the message and the condition causing the failure must be corrected before the HL7 message will be accepted by SSEDON . If the extraneous segment does follow HL7 guidelines, SSEDON will ignore the undocumented segment. This "extraneous" data (segment) is best negotiated prior to transmission between the sending facility and SSEDON.
- If a data element is not documented in this guide, the data element should not be sent.

SSEDON HL7 Message Structure

SSEDON uses the ADT (Admission, Discharge, and Transfer) message type. The ADT message type is used for sending patient data including the patient's chief complaint, diagnostic codes, and clinical data marks such as blood pressure, temperature, height, weight, cholesterol, etc. The following tables show the segments that are used to construct each message type. Each segment is one line of text ending with the carriage return <cr> character. The carriage return is needed so that the HL7 messages are readable and printable. The messages may appear somewhat cryptic due to the scarcity of white space. Square brackets [ ] enclose optional segments and curly braces {} enclose segments that can be repeated; thus, an ADT message type could be composed of just MSH, EVN, PID and PV1 segments. The full HL7 standard allows additional segments within these message types, but they are unused by SSEDON. The segments that are documented here are sufficient to support the principal SSEDON functions of storing data about patients and emergency department encounters.

Basic HL7 Message Structure Attributes

The structure of the supported messages in this guide is described in tabular format. The columns of those tables are used as described in the table below.

Table 1.3	Basic HL7 Message Structure Attributes
Attribute	Definition
Segment	A three-character code for the segment plus the square and curly braces structure syntax. If a segment is not documented in this guide, it should not be sent. [XXX] Optional {XXX} Repeating XXX Required [{XXX}] Optional and Repeating
Name	A short, descriptive name of the segment.
Description	Explanation of the use of the segment.
Usage	Describes the use of the segment by SSEDON. Values used in this implementation are: R Required, Segment must be sent with fields populated according to the segment definition. RE Required, but may be empty. If the sender captures the data, the data must be sent. C Conditional – When conditionality predicate evaluates to "True", the segment usage behaves the same as 'RE', otherwise the segment should not be populated.
Cardinality	Defines the minimum and maximum number of times the segment may appear in this message. [0..1] Segment may be omitted and can have, at most, one occurrence. [1..1] Segment must have exactly one occurrence. [0..*] Segment may be omitted or may repeat an unlimited number of times.

HL7 ADT Message Layout

The HL7 message formats sent to SSEDON will be constrained versions of the 2.5.1 abstract message formats. Only the segments necessary for carrying the syndromic data, and certain structural message segments, are included. Because the message structure for the message types is similar, one table (Table 3-5A) was used to define the message structure for the ADT A01, A04, and A08 messages. Another table (Table 3-5B) was used for the A03 message structure, as per the HL7 Standard.

HL7 ADT Message Structure ADT_A01 Layout

Table 1.4	SSEDON ADT Message Structure ADT_A01 Layout			
Segment	Name	Description	Usage	Cardinality
MSH	Message Header	Information explaining how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Identifies the date and time of the trigger event and identifies the owner of the information.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
PV1	Patient Visit	Information related to this visit at this hospital including a unique visit identifier and critical timing information.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason / Chief Complaint information. PV2 is optional if a DG1 segment with chief complaint data is sent. If no DG1 segment is sent, the PV2 segment is required.	C	[0..1]
[OBX]	Observation Information	Information related to clinical observations/results	RE	[0..*]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information. DG1 is optional if a PV2 segment is sent. If no PV2 segment is sent, one or more DG1 segments are required.	C	[0..*]

HL7 ADT Message Structure ADT_A03 Layout

NOTE: If you are using the ADT_A03 layout, please note that the accepted order of OBX and DG1 segments is reversed.

Table 1.5	SSEDON ADT Message Structure ADT_A03 Layout			
Segment	**Name**	**Description**	**Usage**	**Cardinality**
MSH	Message Header	Information explaining how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
EVN	Event Type	Identifies the date and time of the data event and identifies the owner of the information.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
PV1	Patient Visit	Information related to this visit at this hospital including a unique visit identifier and critical timing information.	R	[1..1]
[PV2]	Patient Visit Additional Information	Admit Reason / Chief Complaint information. PV2 is optional if a DG1 segment with chief complaint data is sent. If no DG1 segment is sent, the PV2 segment is required.	C	[0..1]
[{DG1}]	Diagnosis	Admitting Diagnosis and, optionally, Working and Final Diagnosis information. DG1 is optional if a PV2 segment is sent. If no PV2 segment is sent, one or more DG1 segments are required.	C	[0..*]
[OBX]	Observation Information	Information related to clinical observations/results	RE	[0..*]

Segment Profile Attributes

The structure of the supported segments in this guide is described in tabular format. The columns of those tables are used as described in the table below.

Table 1.6	Basic HL7 Message Structure Attributes
Attribute	**Definition**
Sequence	Sequence of the elements as they are numbered in the HL7 Segment
Element Name	Descriptive name of the data element
Description	Explanation of the use of the element.
Data Set	Indicates if element is a part of the meaningful use minimum data set. If minimum data set is not indicated SSEDON HL7 usage attribute takes precedence. Literal values used are: **MDS** Element is part of the Meaningful Use Minimum Data Set **SSEDONR** Element is part of Nebraska's Required Syndromic Surveillance Data Set. **SSEDONE** Element is part of Nebraska's Enhanced Syndromic Surveillance Data Set
Value Set	Link to value set or literal value of data expected to be populated in the field. A table in appendix A lists all of the value sets and their literal values included in this messaging guide. Numbers in this field denote the related vocabulary in that HL7 Table. Contains the name and/or the PHIN Value Set (accessible through PHIN VADS) when relevant as well as notes, condition rules and recommendations.
Length	Length of an element
Usage	Describes the use of the elements within the segment by SSEDON. Values used in this implementation are: • R Required, Element must be sent with sub-elements populated according to the definition. • RE Required, but may be empty. If the sender captures the data, the data must be sent in the specified segment. • C Conditional – When conditionality predicate evaluates to "True', the segment usage behaves the same as 'RE', otherwise the segment should not be populated. **Note**: A required(R) component in a required, but may be empty (RE) element does not mean the element must be present in the segment. It means that if the element is present, the required component within that element must be populated.
Cardinality	Defines the minimum and maximum number of times the element may appear in this segment. [0..1] Element may be omitted and can have, at most, one occurrence. [1..1] Element must have exactly one occurrence. [0..*] Element may be omitted or may repeat an unlimited number of times.

2   HL7 Message Protocol

2.1.1 MSH: Message Header Segment Definition

The MSH segment defines the intent, source, destination and some specifics of the syntax of the message.

Example:

```
MSH|^~\&|DCC|NEHOSP||SSEDON|20110127111604||ADT^A08^ADT_A01|00069250|P|2.5.1
```

Table 2.1.1	MSH: Message Header Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	Len	DT	Usage	Cardinality
1	Field Separator	Character to be used as the field separator for the rest of the message. The supported value is the pipe "|" character. (ASCI 124)			1	ST	R	[1..1]
2	Encoding Characters	Characters to be used as the component separator, repetition separator, escape character and subcomponent separator. The supported values are "^~\&" (ASCII 94, 126, 92, and 38)			4	ST	R	[1..1]
3	Sending Application	Identifies the sending application for the other HL7 message exchange applications belonging to the sender. This field is an optional convenience. See MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.			227	HD	O	[0..1]
3.1	Name Text	Name of application or software used to create or send this message. SSEDON suggests that a shortened name, abbreviation or acronym be used.				IS	O	[0..1]
4	Sending Facility Name	Uniquely identifies the facility associated with the application that sends the message.			227	HD	R	[1..1]
4.1	Name Text	Name of sending facility. SSEDON suggests that a shortened name, abbreviation or acronym be used in the first component. Ex: NEHOSP			20	IS	RE	[0..1]
4.2	Universal ID	Unique identifier of sending facility.			199	ST	R	[1..1]
4.3	Universal ID Type	Expected value "NPI"			6	ID	R	[1..1]
6	Receiving Facility	Unique Identifier for the receiving facility.			180	HD	R	[1..1]
6.1	Receiving Facility Name	Literal value "SSEDON"				IS	R	[1..1]
7	Date/Time of Message	Date and time sending system created the message: YYYYMMDDHHMM[SS[.S[S[S]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.			26	TS	R	[1..1]

Table 2.1.1	MSH: Message Header Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	Len	DT	Usage	Cardinality
9	Message Type	Messages will be ADT (Admit-Discharge-Transfer) message type. The triggering event is the real-world circumstance causing the message to be sent. If an ADT message is sent then supported trigger events are A01 (Admit/Visit Notification), A03 (Discharge/End Visit), A04 (Emergency Department Registration), and A08 (Patient Update). Ex: ADT^A08^ADT_A01			15	MSG	R	[1..1]
9.1	Message Type	Literal value "ADT"			3	ID	R	[1..1]
9.2	Trigger Event	One of the following Literals: 'A01' Admit/Visit Notification, 'A03' Discharge/End Visit, 'A04' Emergency Department Registration, and 'A08' Patient Update.			3	ID	R	[1..1]
9.3	Message Structure	Indicates the layout of the message. Literal values "ADT_A01" (admission layout) and "ADT_A03" (discharge layout). Note: the only trigger event to be used with ADT_A03 is the A03 Discharge/End visit.			7	ID	R	[1..1]
10	Message Control ID	The message control ID is a string (which may be a number) uniquely identifying the message among all those ever sent by the sending system. It is assigned by the sending system. Some hospitals send a Date/Time stamp using microsecond precision or Date/Time stamp using minute precision plus a sequence number that restarts each day at one or wraps around when it reaches all 9s.			199	ST	R	[1..1]
11	Processing ID	Indicates how to process the message as defined in HL7 processing rules.		0103	3	PT	R	[1..1]
12	Version ID	The HL7 version number used to interpret format and content of the message. Literal Value "2.5.1" is the only accepted value.			12	ST	R	[1..1]

2.1.2 EVN: Event Type Segment Definition

The EVN segment is used to communicate trigger event information to receiving applications.

Example:
```
EVN||201102091114|||||MIDLAND HLTH CTR^9876543210^NPI
```

Table 2.1.2	EVN: Event Type Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	LEN	DT	Usage	Cardinality
2	Recorded Date/Time	Date and time when the Transaction was entered. YYYYMMDDHHMM[SS[.S[S[S]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.	MDS		26	TS	R	[1..1]
7	Event Facility	Treating facility where the original event occurred.	MDS		241	HD	R	[[1..1]
7.1	Facility Name	Name of the originating facility			20	IS	RE	[0..1]
7.2	Universal ID	National Provider Identifier (10 digit Identifier)			199	ST	R	[1..1]
7.3	Universal ID Type	Expected value "NPI"			6	ID	R	[1..1]

2.1.4 PID: Patient Identification Segment Definition

The PID segment is used as the primary means of communicating patient identification information. This segment contains patient identification and demographic information that does not change frequently.

Example:

```
PID|1||99XYZ8877^^^^MR||~^^^^^^S||20040908|M||2054-5^^CDCREC|^^^^65109-1234|||||||||||H^HISPANIC^CDCREC|||||||201104290345|Y
```

Table 2.1.4	PID: Patient Identifier Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of the segments. Only one patient per message is supported. Literal value: "1".			4	SI	R	[1..1]
3	Patient Identifier List	Patient's unique identifier(s) from the facility that is submitting this report to public health officials	MDS		478	CX	R	[1..1]
3.1	Identifier	Patient Medical Record Number is desired here. This value is to be the same each time the patient visits the facility. The patient medical record number will more easily facilitate identification of the patient in the event of a required follow-up investigation. Without it, the work required to follow up on the data provider is greatly increased.			15	ST	R	[1..1]
3.5	Type Code	Identifier Type Code that corresponds to the type of ID number specified in PD-3.1. For Medical Record Number, use the literal value "MR".		0203	5	ID	R	[1..1]
5	Patient Name	SSEDON does not require the patient name. The Patient ID number will be used to uniquely identify the patient. HL7 does require the patient name field for a PID segment. Due to HL7 guidelines the patient name field must still be populated.. Literal value for the element "~^^^^^^S"			294	XPN	R	[1..*]
7	Patient Date/Time of Birth	Patient's date of birth. YYYYMMDD[HHMM] Preferred precision is to the nearest day and time components may be sent if they are known Ex: 19580704 or 200409081426	SSEDONR		26	TS	RE	[1..1]
8	Patient Gender	Code for the gender of the patient.	MDS	0001	1	IS	RE	[1..1]
10	Patient Race	Code for the race of the patient.	MDS		478	CE	R	[1..*]
10.1	Identifier	Standardized code for patient race.		CDCREC	20	ST	R	[1..1]
10.2	Text	Standardized description associated with the code in PID-10.1.			199	ST	O	[0..1]
10.3	Name of Coding System	Name of coding system is required if an identifier is provided in component 10.1		0203	20	CE	C	[0..1]

Table 2.1.4	PID: Patient Identifier Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	LEN	DT	Usage	Cardinality
11	Patient Address	Patient's primary residence address. Only the patient's zip code is required in the patient address for data security issues..			513	XAD	R	[1..1]
11.4	State or Province	Code or text indicating state or Province of residence	MDS	FIPS 5-2			RE	[0..1]
11.5	Zip Code	Postal Code portion of the patient's home address. Extended zip code values are not required but may be sent.	MDS	USPS	12	ID	R	[1..1]
11.6	Country	Code indicating country of residence	MDS	ISO 3166-1			RE	[0..1]
22	Patient Ethnic Group	Further defines the patient's ancestry as Hispanic, Non-Hispanic or Unknown. No repetitions. Ex: H or N or N^NON-HISPANIC (text is optional	MDS		478	CE	RE	[0..1]
22.1	Identifier	Standardized identifier for the ethnicity of the patient.		CDCREC	20	ID	R	[1..1]
22.2	Text	Standardized text description associated with the code in PID-22.			199	ST	O	[0..1]
22.3	Name of Coding System	Required if an identifier is provided in component 1		0203	20	ID	C	[0..1]
29	Patient Death Date and Time	Required if PID-30 Patient Death Indicator = "Y". YYYYMMDD[HH[MM]] The minimum acceptable precision is to the nearest day; time components are desirable Ex: 20110319 or 20110319041627			26	TS	C	[0..1]
30	Patient Death Indicator	Code indicating if the patient is deceased. Ex: Y (the patient died) or N (the patient is still alive)		0136	1	ID	R	[1..1]

2.1.5 PV1: Patient Visit Segment

The PV1 segment is used by Registration/Patient Administration applications to communicate information on a visit-specific case.

Examples:

```
PV1|1|E||E|||||||||||7|||||8399193^^^^VN|||||||||||||||||||||||||||||20091209031420
PV1|1|E||E|||||||||||7|||||V20220217-00274^^^^VN|||||||||||||||||20|||||||||201102171656|201102172334
```

Table 2.1.5	PV1: Patient Visit Segment Definition								
Seq	**Element Name**	**Description**	**Data Set**	**Value Set**	**LEN**	**DT**	**Usage**	**Cardinality**
1	Set ID	Numbers the repetitions of segments. Only one per patient per message is supported. Literal Value: "1".			4	SI	RE	[0..1]
2	Patient Class	Patient Class does not have a consistent industry-wide definition and is subject to site-specific variations. SSEDON supports only messages with Patient Class = E (Emergency Department visits) or I (Inpatient Admission) or O (Outpatient). Literal values: "E", "I" or "O"	MDS	0004	1	IS	RE	[1..1]
4	Admission Type	Indicates the circumstances under which the patient was seen or will be admitted.		0007	2	IS	O	[0..1]
14	Admit Source	Indicates the place from which the patient was admitted or referred. Sometimes known as the Referral Source. If this information is not known or not collected, use 9 (Information not available) as a default.		0023	3	IS	O	[0..1]
19	Visit Number	Unique Identifier for this visit by this patient at this hospital.	MDS		478	CX	R	[1..1]
19.1	Identifier	Unique identifier assigned to each patient visit.			15	ST	R	[1..1]
19.5	Type Code	Indicates the type of ID number specified in PV1-19.1		0203	5	ID	R	[1..1]
36	Discharge Disposition	Patient's anticipated location or status following the encounter.	MDS	0112	36	IS	RE	[0..1]
44	Admit Date/Time	Date and time of the patient presentation. Format: YYYYMMDDHHMM[SS[.S[S[S]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.	MDS		26	TS	R	[1..1]
45	Discharge Date/Time	Date and time of the patient discharged. Format: YYYYMMDDHHMM[SS[.S[S[S]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.	MDS		26	TS	RE	[0..1]

2.1.6 PV2: Patient Visit Additional Information Segment Definition

SSEDON's preferred method of receiving Chief Complaint data is using a PV2 segment. The PV2 segment is a continuation of visit-specific information and is the segment where the Chief Complaint data is passed. This element is a CE data type and the Chief Complaint text may be sent as free text in the second component of PV2-3 Admit Reason.

```
PV2|||625.9^PELVIC PAIN^I9
PV2|||^ABDMNAL PAIN
```

Table 2.1.6	PV2: Patient Visit Additional Information Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	LEN	DT	Usage	Cardinality
3	Admit Reason	Short description of the reason for patient's visit. If the description text has been identified with a code, the code must also be sent. Ex: |^FEVER/COUGH, HA| or |112.0^THRUSH^I9|	MDS		478	CE	R	[1..1]
3.1	Identifier	If an ICD-9-CM, ICD-10 or SNOMED Disease/Disorder code has been identified for the text in PV2-3.2, the code must be sent. Codes may be sent with or without embedded periods. Ex: V72.9 or V729, 454.0 or 4540, 945.22 or 94522			20	ST	RE	[0..1]
3.2	Text	Short description relating only to the reason for the patient's visit. Any abbreviations used should be common to industry practice. Even if a code has been sent in PV2-3.1, the standardized text component must be sent. Ex: "DIZZY, NAUSEA" or "PARALYSIS NOS"			199	ST	R	[1..1]
3.3	Name of Coding System	Name of standardized coding scheme used for the code in PV2-3.1. If no code was specified in PV2-3.1, there is no need to populate this component. ICD9 is the preferred coding methodology.		0396	20	ID	C	[0..1]
38	Mode of Arrival	Indicates how the patient arrived at health care facility	SSEDONR		478	CE	RE	[1..1]
38.1	Identifier	Standardized identifier for mode of arrival.		0430	1		R	[1..1]
38.2	Text	Standardized description relating to the mode of arrival code in PV2-38.1. Even if a code has not been sent in PV2-38.1, a text component must be sent here. Any abbreviations used should be common to industry practice.			199		RE	[0..1]
38.3	Name of Coding System	Name of standardized coding scheme used for the code in PV1-38.1. If no code was specified in PV1-38.1, there is no need to populate this component.		0396	20		R	[1..1]

2.1.7 DG1: Diagnosis Segment Definition

The DG1 segment contains patient diagnosis information. SSEDON supports Admitting, Working and Final Diagnosis types. Regardless of whether a code is sent, the diagnosis text must be sent.

Examples:

```
DG1|1||CC^LOWER BACK PAIN|||CC
DG1|1||8472^SPRAIN LUMBAR REGION^I9|||F
```

Table 2.1.7	DG1: Diagnosis Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of the segments. For the first occurrence of the segment the sequence number shall be 1, for the second occurrence it shall be 2, etc.			4	SI	R	[1..1
3	Diagnosis Code		MDS		478	CE	R	[1..1]
3.1	Identifier	Standardized identifier for diagnosis. ICD9 Clinical Modification Diagnosis codes, ICD10 Clinical Modification diagnosis codes, or SNOMED Disorder/Disease domain codes should be used here			20	ST	R	[1..1]
3.2	Text	Standardized description relating to the diagnosis code in DG1-3.1. Even if a code has not been sent in DG1-3.1, a text component must be sent here. Any abbreviations used should be common to industry practice.			199	ST	RE	[0..1]
3.3	Name of Coding System	Name of standardized coding scheme used for the code in DG1-3.1. If no code was specified in DG1-3.1, there is no need to populate this component. ICD9 is the preferred coding method.		0396	20	ID	C	[1..1]
5	Diagnosis Date/Time	Date and time of the observation. Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.			26	TS	O	[0..1]
6	Diagnosis Type	Identifies the type of diagnosis being sent.	MDS	0052	2	IS	R	[1..1]

2.1.8 OBX: Observation Result Segment Definition

The OBX segment is primarily used to carry key clinical observations/results reporting information within HL7 messages. The OBX will be used to communicate the data elements listed here. For examples of complete OBX segments please review APPENDIX C.

Data Element	Data Set
Initial Vital Signs	
Blood Pressure	SSEDONE
Pulse Rate	SSEDONE
Respiratory Rate	SSEDONE
Temperature	MDS
Pulse Oximetry	MDS
Chest x-ray	SSEDONE
Blood Culture	SSEDONE
Blood Gas	SSEDONE
WBC Result	
WBC result – Normal	SSEDONE
WBC result – Abnormal	SSEDONE
Influenza A Test Result	SSEDONE
Influenza B Test Result	SSEDONE
ED Acuity Assessment	SSEDONE
Height	SSEDONE
Weight	SSEDONE
BMI	SSEDONE
Smoking Status	
Current every day smoker	SSEDONE
Current some day smoker	SSEDONE
Former smoker	SSEDONE
Never smoker	SSEDONE
Smoker, current status unknown	SSEDONE
Unknown if ever smoked	SSEDONE
Heavy tobacco smoker	SSEDONE
Light tobacco smoker	SSEDONE
Most recent Hemoglobin A1C result	SSEDONE
Transferred to/from ICU	SSEDONE
Pregnancy Status	SSEDONE
Order for Ventilator	SSEDONE
Order for airborne precautions	SSEDONE
Date of Onset	MDS
Patient Reported Age	MDS
Facility/Visit Type	MDS
Triage Notes	MDS
Chief Complaint	MDS

Table 2.1.8	OBX: Observation Result Segment Definition							
Seq	Element Name	Description	Data Set	Value Set	LEN	DT	Usage	Cardinality
1	Set ID	Numbers the repetitions of the segments. SSEDON supports repetition of the OBX segment. For the first occurrence of the segment the sequence number should be "1", for the second occurrence it shall be "2", etc			4	SI	RE	[1..1]
2	Observation Value Data Type	Identifies the structure of data used for OBX-5. If OBX-5 is populated then OBX-2 is required. A table of valid observation value data types is located in Appendix B			3	ID	R	[1..1]
3	Observation Identifier	Identifies the data to be received in OBX-5. A table with examples of observation identifier codes, description, and name of the coding system is in Appendix C.			478	CE	R	[1..1]
3.1	Identifier	Standardized code for observation.			20	ST	RE	[0..1]
3.2	Text	Standardized description relating to the observation code in OBX-3.1. Even if a code has not been sent in OBX-3.1, a text component must be sent here. Any abbreviations used should be common to industry practice.			199	ST	R	[1..1]
3.3	Name of Coding System	Name of standardized coding scheme used for the code in OBX-3.1. If no code was specified in OBX-3.1, there is no need to populate this component.		0396	20	ID	C	[0..1]
5	Observation Value	Values received in observation value are defined by value type (OBX.2) and observation identifier (OBX.3).			9999	varies	R	[1..1]
6	Units	Units are a conditional field. If numeric data is sent, the units field must define the units if the value used in observation value (OBX.5)			62	CE	C	[0..1]
6.1	Identifier	Standardized identifier for units describing the value in OBX-5.		UCUM	20	ST	O	[0..1]
6.2	Text	Standardized description associated with the identifier in OBX-6.1.			20	ST	O	[0..1]
6.3	Name of Coding System	The name of the coding system for value of OBX-6.1. This value is required if an identifier is provided in component 1.		0396	20	ID	C	[0..1]
11	Observation Results Status	Expected Value 'F'		0085	1	ID	R	[1..1]
14	Observation Date/Time	Date and time of the observation. Format: YYYYMMDDHHMM[SS[.S[S[S]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds are desirable. If Coordinated Universal Time (UTC) offset is not sent, it is assumed to be offset of the receiver.			26	TS	O	[0..1]

3 EXAMPLES

A minimal amount of data was intentionally used to provide emphasis on the Syndromic Surveillance data elements of interest.

3.1 A04 EMERGENCY DEPARTMENT REGISTRATION; NO UPDATES;

In the following example, a non-Hispanic white female, 67 years old, visits the Nebraska Hospital emergency department with an infected abrasion on her forearm. The Medical Record Number, 20060012168, is sent for the patient identifier. Since this is an Emergency Department visit, PV1-44 reflects the time the patient registered in the Emergency Department. The Admit Reason is coded in ICD-9. The original provider of the data, Nebraska Hospital, is captured in the EVN-7. The facility location and visit type was provided by Nebraska Hospital.

```
MSH|^~\&||NEHOSP^9876543210^NPI||SSEDON|201102091114||ADT^A04^ADT_A01|201102091114-0078|P|2.5.1<cr>
EVN||201102091114|||||NEHOSP^9876543210^NPI<cr>
PID|1||20060012168^^^^MR||~^^^^^^S||19440527|F||2106-3^White^CDCREC|^^^NE^68541|||||||||||2186-5^Not Hispanic^CDCREC||||||||N<cr>
PV1||E||E||||||||||||20110209_0064^^^^VN|||||||||||||||||||||||||||||20110217144208<cr>
PV2|||9131^ABRASION FOREARM-INFECT^I9CDX||||||||||||||||||||||||||||||P^PUBLIC TRANSPORTATION^HL70430<cr>
OBX|1|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^^^13^30341^USA^C||||||F|||201102091114<cr>
OBX|2|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC||||||F|||201102091114<cr>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||67|a^YEAR^UCUM|||||F|||201102091114<cr>
```

3.2 A04 EMERGENCY DEPARTMENT REGISTRATION FOLLOWED BY A08 UPDATE

In the next example, a non-Hispanic black male, 52 years old, visits the Nebraska Clinic with cough and ear pain. Nebraska Clinic does not transmit Medical Record Number, so it uses a unique patient identifier of 95101100001, in PID-3. The chief complaint was sent as free text and an admitting diagnosis was sent in the DG1 segment, coded in ICD-9. This example also illustrates how data is to be handled when there is a parent-child relationship between health care facilities. The original provider of the data, Nebraska Clinic (child), is captured in the EVN-7, but the sender of the data, Nebraska Hospital (parent) is captured in MSH-4.

```
MSH|^~\&||NEHOSP^9876543210^NPI||SSEDON|20110217144317||ADT^A04^ADT_A01|E100648329|P|2.5.1<cr>
EVN||20110217144317|||||NECLINIC^0133195934^NPI<cr>
PID|1||95101100001^^^^PI||~^^^^^^S||19590812|M||2054-5^Black or African American^CDCREC|^^^29^65101|||||||||||2186-5^Not Hispanic^CDCREC<cr>
PV1||E||E|||||||||1|||||8399193^^^^VN|||||||||||||||||||||||||||||20110217144208<cr>
PV2|||^HEADACHE FOR 2 DAYS|||||||||||||||||||||||||||||||||||||||C^CAR^HL70430<cr>
DG1|1||4739^CHRONIC SINUSITIS NOS^I9CDX||A<cr>
OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||52|a^YEAR^UCUM|||||F|||201102171443<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^HEADACHE FOR 2 DAYS<cr>
OBX|1|XAD|SS002^TREATING FACILITY LOCATION^PHINQUESTION||^^^13^30341^USA^C||||||F|||201102091114<cr>
OBX|2|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC||||||F|||201102091114<cr>
```

Continuing the previous example, a non-Hispanic black male, 52 years old, visits the Nebraska Clinic with cough and ear pain. Nebraska Clinic wants to update the receiving system with new information about the same patient and the same visit. The Visit Number and Admit Date/Time have not changed; but, the Message Date/Time and Message Control ID have. So, an A08 message is used to transmit the additional information: Temperature, Blood Oxygen Level, and Final Diagnosis.

```
MSH|^~\&||CITY GENL HOSP^9876543210^NPI||SSEDON|20110217145139||ADT^A08^ADT_A01|E100648353|P|2.5.1<cr>
EVN||20110217144317|||||NECLINIC^0133195934^NPI<cr>
PID|1||95101100001^^^^PI||~^^^^^^S||19590812|M||2054-5^Black or African American^CDCREC|^^^29^65101|||||||||||||2186-5^Not Hispanic^CDCREC<cr>
PV1||E||E|||||||||||1|||||8399193^^^^VN|||||||||||||||||||||||||||||20110217144208<cr>
DG1|1||4739^CHRONIC SINUSITIS NOS^I9CDX|||A<cr>
DG1|2||04100^STREPTOCOCCUS UNSPECF^I9CDX|||F<cr>
OBX|1|NM|21612-7^AGE TIME PATIENT REPORTED^LN||52|a^YEAR^UCUM|||||F|||20110217145139<cr>
OBX|2|CWE|8661-1^CHIEF COMPLAINT:FIND:PT:PATIENT:NOM:REPORTED^LN||^^^^^^^^HEADACHE FOR 2 DAYS<cr>
OBX|3|NM|11289-6^BODY TEMPERATURE^LN||100.1|[degF] ^FARENHEIT^UCUM||A|||F|||20110217145139<cr>
OBX|4|NM|59408-5^OXYGEN SATURATION^LN||91|% ^PERCENT^UCUM||A|||F|||20110217145139<cr>
```

3.3 A04 EMERGENCY DEPARTMENT REGISTRATION; A01 INPATIENT ADMISSION; A03 DISCHARGE INCLUDING PATIENT DEATH

In the next example, a non-Hispanic white female, 43 years old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomachache. The chief complaint was sent as free text and the admitting diagnosis was coded in a DG1 segment.

```
MSH|^~\&||OTHER REG MED CTR^9182736450^NPI||SSEDON|201102171531||ADT^A04^ADT_A01|201102171531956|P|2.5.1<cr>
EVN||201102171531||||| OTHER REG MED CTR^9182736450^NPI <cr>
PID|1||FL01059711^^^^PI||~^^^^^^S||19680315|F||2106-3^White^CDCREC|^^^12^33821|||||||||||||2186-5^Not Hispanic^CDCREC<cr>
PV1||E||E|||||||||7|||||V20220217-00274^^^^VN|||||||||||||||||||||||||||||201102171522<cr>
PV2|||^Stomach Ache<cr>
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>
```

Continuing the example, the same non-Hispanic white female, 43 years old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomach ache. The patient is suspect for appendicitis and is admitted as an inpatient. The patient has also reported that she has had a stomach ache since the 15th of February. The patient class (PV1.2) is changed to Inpatient. Admit Date/Time (PV1.44) is updated with the admission date and time.
In this particular case, visit number (PV1.19) has remained the same. However, it is recognized that some insurance companies require the visit number to be changed when a patient is admitted from the Emergency Department.

```
MSH|^~\&||OTHER REG MED CTR^9182736450^NPI|||201102171658||ADT^A08^ADT_A01|201102171658076|P|2.5.1<cr>
EVN||201102171658|||||OTHER REG MED CTR^9182736450^NPI <cr>
PID|1||FL01059711^^^^PI||~^^^^^^S|||F||2106-3^White^CDCREC|^^^12^33821|||||||||||||2186-5^Not Hispanic^CDCREC<cr>
PV1||I||E|||||||||7|||||V20220217-00274^^^^VN|||||||||||||||||||||||||||||201102171656<cr>
PV2|||^Stomach Ache<cr>
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>
OBX|4|NM|11289-6^BODY TEMPERATURE^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||201102171658<cr>
OBX|5|NM|59408-5^OXYGEN SATURATION^LN||95|%^PERCENT^UCUM||A|||F|||201102171658<cr>
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME^LN||20110215|||||||F|||201102171658<cr>
```

Continuing the example, the same non-Hispanic white female, 43 years old, visits the Other Regular Medical Center emergency department with a chief complaint of a stomach ache. The patient has expired and this is indicated in PV1.36 (Code=20). A final diagnosis is also sent. It is also indicated by the "Y" in PID-30 and the Date and Time of Death in PID-29. The discharge date/time (PV1.45) is sent with the A03 message type.

```
MSH|^~\&|  |OTHER REG MED CTR^1234567890^NPI||SSEDON|201102172334||ADT^A03^ADT_A03|201102172334640|P|2.5.1<cr>
EVN||201102172334|||||OTHER REG MED CTR^1234567890^NPI
PID|1||FL01059711^^^^PI||~^^^^^^S |||F||2106-3^White^CDCREC|^^^12^33821||||||||||||2186-5^Not Hispanic^CDCREC|||||||201102172334|Y<cr>
PV1||I||E||||||||||7|||||V20220217-00274^^^^VN||||||||||||||||||20|||||||||201102171656|201102172334<cr>
PV2|||78907^ABDOMINAL PAIN, GENERALIZED^I9CDX<cr>
OBX|3|NM|21612-7^AGE TIME PATIENT REPORTED^LN||43|a^YEAR^UCUM|||||F|||201102171531<cr>
OBX|4|NM|11289-6^BODY TEMPERATURE^LN||99.1|[degF]^FARENHEIT^UCUM||A|||F|||201102171658<cr>
OBX|5|NM|59408-5^OXYGEN SATURATION^LN||95|%^PERCENT^UCUM||A|||F|||201102171658<cr>
OBX|6|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME^LN||20110215||||||F|||201102171658<cr>
DG1|1||78900^ABDMNAL PAIN UNSPCF SITE^I9CDX|||A<cr>
DG1|2||5409^ACUTE APPENDICITIS NOS^I9CDX|||W<cr>
DG1|3||5400^AC APPEND W PERITONITIS^I9CDX|||F<cr>
```

4 HL7 BATCH PROTOCOL

The HL7 Batch Protocol can be used to allow for periodic reporting. The HL7 file and batch header and trailer segments are defined in exactly the same manner as the HL7 message segments; hence, the same HL7 message construction rules used for individual messages can be used to encode and decode HL7 batch files. **One batch of messages per file is supported.**

4.1 HL7 BATCH FILE STRUCTURE

The structure of the batch file is constrained as follows:

Table 4.1	Batch Simple File Structure			
Segment	**Name**	**Description**	**Usage**	**Cardinality**
FHS	File Header Segment	Information explaining how to parse and process the file. This information includes identification of file delimiters, sender, receiver, timestamp, etc.	R	[1..1]
BHS	Batch Header Segment	Trigger event information for receiving application. One batch per file is supported.	R	[1..1]
{HL7 Messages}			R	[1..*]
BTS	Batch Trailer Segment		R	[1..1]
FTS	File Trailer Segment		R	[1..1]

4.2   FILE HEADER (FHS) SEGMENT

This segment is used as the lead-in to a file (group of batches).

Table 4.2	FHS: File Header Segment Definition					
Seq	Element Name	Description	Len	DT	Usage	Cardinality
1	File Field Separator	Same definition as the corresponding field in the MSH segment.	1	ST	R	[1..1]
2	File Encoding Characters	Same definition as the corresponding field in the MSH segment.	4	ST	R	[1..1]
4	File Sending Facility Name	Same definition as the corresponding field in the MSH segment.	227	HD	O	[1..1]
6	File Receiving Facility	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
7	File Creation Date and Time	Same definition as the corresponding field in the MSH segment.	26	TS	R	[1..1]
9	File Name	Same definition as the corresponding field in the MSH segment.	20	ST	O	[0..1]
11	File Control ID	This field is used to identify a particular file uniquely among all files sent from the sending facility identified in FHS-4.	199	ST	O	[0..1]
12	Reference File Control ID	Contains the value of FHS-11-file control ID when this file was originally transmitted. Not present if file is being transmitted for the first time.	20	ST	O	[0..1]

4.3   FILE TRAILER (FTS) SEGMENT

The FTS segment defines the end of a file (group of batches).

Table 4.3	FTS: File Trailer Segment Definition					
Seq	Field Name	Description	Length	DT	Usage	Cardinality
1	File Batch Count	The number of batches contained in this file. Since this interface is constrained to one batch per file, this number should always be '1'.	10	NM	R	[1..1]
2	Batch Comment		80	ST	O	[0..1]

4.4   BATCH HEADER (BHS) SEGMENT

The BHS segment is used to head a group of messages that comprise a batch.

Table 3.4	BHS: Batch Header Segment Definition					
Seq	Field Name	Description	Length	DT	Usage	Cardinality
1	Batch Field Separator	Character to be used as the field separator for the rest of the batch. The supported value is the pipe "|" character. (ASCI 124)	1	ST	R	[1..1]
2	Batch Encoding Characters	Characters to be used as the component separator, repetition separator, escape character and subcomponent separator. The supported values are "^~\&" (ASCII 94, 126, 92, and 38)	4	ST	R	[1..1]
3	Batch Sending Application	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
4	Batch Sending Facility	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
6	Batch Receiving Facility	Same definition as the corresponding field in the MSH segment.	227	HD	R	[1..1]
7	Batch Creation Date/Time	Same definition as the corresponding field in the MSH segment.	26	TS	R	[1..1]

4.5   BATCH TRAILER (BTS) SEGMENT

The BTS segment defines the end of a batch of messages.

Table 4.5	BTS: Batch Trailer Segment Definition					
Seq	Field Name	Description	Length	DT	Usage	Cardinality
1	Batch Message Count	The number of Messages contained in the preceding batch	10	NM	R	[1..1]
2	Batch Comment		80	ST	O	[0..1]

4.6   BATCH EXAMPLE

In the following example, Nebraska Health Center sends their syndromic data to their state public health authority. NHC sends the messages that have gathered over the last 12 hour period in batch message format. There are 240 messages.

```
FHS|^~\&<cr>
BHS|^~\&|ER1|NEBRASKA_HLTH_CTR^9876543210^NPI||SSEDON|20110123123558<cr>
MSH|^~\&|ER1|NEBRASKA_HLTH_CTR^9876543210^NPI||SSEDON|20110123003938||ADT^A01^ADT_A01|ER1-20110123-001|P|2.5.1<cr>
… (Continue 240 messages)…
BTS|240|NE HEATH CENTER reporting 1-23-2011: 0000 – 1200 hrs<cr>
FTS|1<cr>
```

5   Message Timing

Encounter data shall be submitted a minimum of once per day as a batch message file containing the previous day's ER/UC encounters and updates. Encounter data may also be submitted in real time. "Real-time" processing refers to the ability to transmit an HL7 2.5.1 formatted ADT^A01(Patient Admission), ADT^A03(Patient Discharge), ADT^A04 (Emergency Department Registration), ADT^A08 (Patient Information Update) messages as the events occur within the patient encounter.

6   Secure Message Transmission

All messages submitted to SSEDON must be sent in an electronic secure fashion. Secure email will be used in the HL7 message testing phase. Once message testing is complete a secure communication ebXML interface shall be used for sending/receiving syndromic surveillance data. The CDC provides, free of charge, their PHINMS client Message Sender for communication with their PHINMS Message Receiver. Alternatively, the provider may choose to develop their own ebXML Message Sender to communicate with the PHINMS Message Receiver.The provider organization will submit a text file containing HL7 2.5 formatted ADT^A01, ADT^A03, ADT^A04 and ADT^A08 Messages (up to 1000 messages are accepted) to be delivered via their ebXML-based client Message Sender to the SSEDON PHINMS Message Receiver. It is the responsibility of the provider organization to obtain or develop, install and configure an ebXML client Message Sender for sending the HL7 2.4 formatted Message Requests. The provider organization will need to obtain from SSEDON a CPA (Collaboration Protocol Agreement) for access to the SSEDON Real-time system.

****SSEDON PROVIDES NEITHER INSTALLATION, CONFIGURATION NOR TECHNICAL SUPPORT FOR THE EBXML CLIENT MESSAGE SENDER.**

Full documentation and contact information for the PHINMS product may be found at the following link: http://www.cdc.gov/phin/

Full documentation for the ebXML specification may be found at the following link: http://www.ebxml.org/specs

PHINMS is ebXML version 2.0 compliant.

Appendix A – Value Sets

Type	Table	Value	Description
HL7	**0001**	**Category: SEX**	
	0001	F	Female
	0001	M	Male
	0001	O	Other
	0001	U	Unknown
HL7	**0003**	**Category: Event Type**	
	0003	A01	Admit/Visit Notification
	0003	A03	Discharge/End Visit
	0003	A04	Register a Patient
	0003	A08	Update Patient Information
HL7	**0004**	**Category: Patient Class**	
	0004	B	Obstetrics
	0004	E	Emergency
	0004	I	Inpatient
	0004	O	Outpatient
	0004	P	Pre-admit
	0004	R	Recurring
HL7	**0007**	**Category: Admission Type**	
	0007	A	Accident
	0007	C	Elective
	0007	E	Emergency
	0007	L	Labor and Delivery
	0007	N	Newborn (Birth in healthcare facility)
	0007	R	Routine
	0007	U	Urgent
HL7	**0023**	**Category: Admit Source**	
	0023	1	Physician Referral
	0023	2	Clinic Referral
	0023	3	HMO Referral
	0023	4	Transfer from a hospital
	0023	5	Transfer from a skilled nursing facility
	0023	6	Transfer from another health care facility
	0023	7	Emergency Room
	0023	8	Court/Law Enforcement
	0023	9	Information not available
HL7	**0052**	**Category: Diagnosis Type**	
	0052	A	Admitting
	0052	CC	Chief Complaint
	0052	F	Final
	0052	W	Working

Type	Table	Value	Description
HL7	**0066**	**Category: Employment Status**	
	0066	1	Full time employment
	0066	2	Part time employment
	0066	3	Unemployed
	0066	4	Self employed
	0066	5	Retired
	0066	6	On active military duty
	0066	9	Unknown
	0066	C	Contract, per diem
	0066	L	Leave of absence (e.g., family leave, sabbatical, etc)
	0066	O	Other
	0066	T	Temporarily unemployed
HL7	**0069**	**Category: Hospital Service**	
	0069	CAR	Cardiac Service
	0069	MED	Medical Service
	0069	PUL	Pulmonary Service
	0069	SUR	Surgical Service
	0069	URO	Urology Service
HL7	**0076**	**Category: Message Type**	
	0076	ADT	ADT message
HL7	**0085**	**Category: Observation result status codes**	
	0085	C	OBX record is a correction, therefore it replaces a final result
	0085	D	Deletes OBX record
	0085	F	Final Result; can only be changed with a corrected result
	0085	I	Specimen in lab; results pending
	0085	N	Not Asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in the OBR-4 implies that it would be sought
	0085	O	Order detail description (no result)
	0085	P	Preliminary results
	0085	R	Results entered -- not verified
HL7	**0103**		
	0103	P	Production
	0103	D	Debugging
	0103	T	Testing
HL7	**0104**	**Category: Version ID**	
	0104	2.5.1	Release 2.5.1 is the only HL7 release version accepted by SSEDON
HL7	**0112**	**Category: Discharge Disposition**	
	0112	01	Discharge to home or self-care (routine discharge)
	0112	02	Discharged/transferred to another short term general hospital for inpatient care
	0112	03	Discharged/transferred to skilled nursing facility (SNF)
	0112	04	Discharged/transferred to an intermediate care facility (ICF)

Type	Table	Value	Description
	0112	05	Discharged/transferred to another type of institution for inpatient care or referred for outpatient services to another institution
	0112	06	Discharged/transferred to home under care of organized home health service organization
	0112	07	Left against medical advice or discontinued care
	0112	08	Discharged/transferred to home under care of Home IV provider
	0112	09	Admitted as an inpatient to this hospital
	0112	20	Expired (i.e. dead)
	0112	30	Still patient or expected to return for outpatient services (i.e. still a patient)
	0112	40	Expired (i.e. died) at home
	0112	41	Expired (i.e. died) in a medical facility; e.g., hospital, SNF, ICF, or free standing hospice
	0112	42	Expired (i.e. died) - place unknown
	0112	43	Discharged/transferred to a federal health care facility. (Effective 10/1/03
	0112	50	Hospice – home
	0112	51	Hospice - medical facility
	0112	61	Discharged/transferred to hospital-based Medicare approved swing bed
	0112	62	Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital. (Effective retroactive to 1/1/02.)
	0112	63	Discharged/transferred to a Medicare certified long term care hospital (LTCH).(Effective 5/9/02.)
	0112	64	Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare. (Effective 10/1/02.)
	0112	65	Discharged/transferred to a psychiatric hospital or psychiatric distinct part unit of a hospital. (Effective 4/1/04)
	0112	66	Discharged/transferred to a Critical Access Hospital (CAH). (Effective 1/1/06)
HL7	**0125**	**Category: OBX Value Type – Please review OBX-5 data type in Appendix B**	
HL7	**0136**	**Category: Yes/No Indicator**	
	0136	Y	Yes
	0136	N	No
HL7	**0203**	**Category: Identifier Type**	
	0203	AN	Account number
	0203	APRN	Advanced Practice Registered Nurse number
	0203	ANON	Anonymous identifier
	0203	BR	Birth registry number
	0203	CDCREC	CDC Race and Ethnicity Code Set
	0203	CY	County number
	0203	DDS	Dentist license number
	0203	DN	Doctor number
	0203	DR	Donor Registration Number
	0203	DFN	Drug Furnishing or prescriptive authority Number
	0203	HC	Health Card Number
	0203	LN	License number

Type	Table	Value	Description
	0203	LR	Local Registry ID
	0203	MD	Medical License number
	0203	MR	Medical record number
	0203	UPIN	Medicare/CMS (formerly HCFA)_s Universal Physician Identification number
	0203	MB	Member Number
	0203	MI	Military ID number
	0203	NH	National Health Plan Identifier
	0203	NII	National Insurance Organization Identifier
	0203	NNxxx	National Person Identifier where the xxx is the ISO table 3166 3-character (alphabetic) country code
	0203	NPI	National provider identifier
	0203	NI	National unique individual identifier
	0203	NP	Nurse practitioner number
	0203	OD	Optometrist license number
	0203	DO	Osteopathic License number
	0203	PPN	Passport number
	0203	PT	Patient external identifier
	0203	PI	Patient internal identifier
	0203	MA	Patient Medicaid number
	0203	MC	Patient's Medicare number
	0203	PCN	Penitentiary/correctional institution Number
	0203	PRC	Permanent Resident Card Number
	0203	PN	Person number
	0203	RPH	Pharmacist license number
	0203	PA	Physician Assistant number
	0203	DPM	Podiatrist license number
	0203	MCD	Practitioner Medicaid number
	0203	MCR	Practitioner Medicare number
	0203	PRN	Provider number
	0203	RRI	Regional registry ID
	0203	RN	Registered Nurse Number
	0203	RI	Resource identifier
	0203	SL	State license
	0203	SR	State registry ID
	0203	SN	Subscriber Number
	0203	ANT	Temporary Account Number
	0203	PNT	Temporary Living Subject Number
	0203	MRT	Temporary Medical Record Number
	0203	U	Unspecified identifier
	0203	VN	Visit number
HL7	**0208**	**Category: Query Response Status**	
	0208	AE	Application Error

Type	Table	Value	Description
	0208	AR	Application Reject
	0208	NF	No data found, no errors
	0208	OK	Data found, no errors (default)
HL7	**0396**	**Category: Coding System**	
	0396	99zzz or L	Local general code (where z is an alphanumeric character)
	0396	HL7nnnn	HL7 defined codes where nnnn is the HL7 table number
	0396	I10	ICD-10
	0396	I9	ICD-9
	0396	I9C	ICD-9CM
	0396	I9CDX	ICD9-CM Diagnosis Codes
	0396	ISOnnnn	ISO defined codes where nnnn is the ISO table number.
	0396	LN	Logical Observation Identifier Names and Codes (LOINC)
	0396	PHINQUESTION	
	0396	SCT	SNOMED Clinical Terms
	0396	UCUM	UCUM Code set for units of measure
	0396	USPS	United States Postal Service
HL7	**0430**	**Category: Mode of Arrival**	
	0430	A	Ambulance
	0430	C	Car
	0430	F	On Foot
	0430	H	Helicopter
	0430	P	Public Transportation
	0430	U	Unknown
HL7	**0895**	**Category: Present on Admission Indicator**	
	0895	E	Exempt
	0895	N	No
	0895	U	Unknown
	0895	W	Not Applicable
	0895	Y	Yes
HL7	**CDCREC**	**Category: Race**	
	CDCREC	1002-5	American Indian or Alaska Native
	CDCREC	2028-9	Asian
	CDCREC	2054-5	Black or African-American
	CDCREC	2076-8	Native Hawaiian or Other Pacific Islander
	CDCREC	2106-3	White
	CDCREC	2131-1	Other Race
	CDCREC	Null	Unknown
HL7	**CDCREC**	**Category: Ethnicity**	
	CDCREC	2135-2	Hispanic or Latino
	CDCREC	2186-5	Not Hispanic or Latino
	CDCREC	U	Unknown
HL7	**UCUM**	**Category: Unit of measure**	

Type	Table	Value	Description
	UCUM	Cel	degrees Celsius [temperature]
	UCUM	[degF]	degrees Fahrenheit [temperature]
	UCUM	d	day [time]
	UCUM	mo	month [time]
	UCUM	UNK	Unknown
	UCUM	wk	week [time]
	UCUM	a	year [time]
	UCUM	%	Percent
	UCUM	mmHg	Millimeters of Mercury
	UCUM	g	Gram
	UCUM	kg	Kilogram
	UCUM	[oz_av]	Ounce
	UCUM	[lb_av]	Pound
	UCUM	cm	Centimeter
	UCUM	m	Meter
	UCUM	[in_us]	Inch
	UCUM	[ft_us]	Foot
HL7	**HCPTNUCC**	**Category: Facility Visit Type**	
	HCPTNUCC	170300000X	Emergency Care
	HCPTNUCC	207XP3100X	Specialty Care
	HCPTNUCC	225XN1300X	Primary Care
	HCPTNUCC	251V00000X	Urgent Care
HL7	**HSLOC**	**Category: Health Service Location**	
	HSLOC	1001-7	Dedicated service delivery location
	HSLOC	1002-5	Dedicated clinical service location
	HSLOC	1003-3	Diagnostics or therapeutics practice setting
	HSLOC	1004-1	Cardiovascular diagnostics or therapeutics unit
	HSLOC	1005-8	Cardiac catheterization lab
	HSLOC	1006-6	Gastroenterology diagnostics or therapeutics unit
	HSLOC	1007-4	Endoscopy lab
	HSLOC	1008-2	Radiology diagnostics or therapeutics unit
	HSLOC	1009-0	Pulmonary function testing
	HSLOC	1010-8	Clinical laboratory
	HSLOC	1011-6	Clinical chemistry
	HSLOC	1012-4	Hematology
	HSLOC	1013-2	Histology/Surgical pathology
	HSLOC	1014-0	Microbiology
	HSLOC	1015-7	Serology lab
	HSLOC	1016-5	Virology lab
	HSLOC	1017-3	Hyperbaric oxygen center
	HSLOC	1018-1	Infusion center
	HSLOC	1019-9	Specimen collection area [Healthcare]

Type	Table	Value	Description
	HSLOC	1020-7	Sleep disorders unit
	HSLOC	1021-5	Inpatient practice setting
	HSLOC	1022-3	Bone marrow transplant unit
	HSLOC	1023-1	Pediatric bone marrow transplant unit
	HSLOC	1024-9	Critical care unit
	HSLOC	1025-6	Trauma critical care unit
	HSLOC	1049-6	Pediatric trauma critical care unit
	HSLOC	1026-4	Burn critical care unit
	HSLOC	1042-1	Pediatric burn critical care unit
	HSLOC	1027-2	Medical critical care unit
	HSLOC	1028-0	Medical cardiac critical care unit
	HSLOC	1029-8	Medical/Surgical critical care unit
	HSLOC	1045-4	Pediatric medical/surgical critical care unit
	HSLOC	1044-7	Pediatric medical critical care unit
	HSLOC	1030-6	Surgical critical care unit
	HSLOC	1048-8	Pediatric surgical critical care unit
	HSLOC	1031-4	Neurosurgical critical care unit
	HSLOC	1046-2	Pediatric neurosurgical critical care unit
	HSLOC	1032-2	Surgical cardiothoracic critical care unit
	HSLOC	1043-9	Pediatric surgical cardiothoracic critical care unit
	HSLOC	1033-0	Respiratory critical care unit
	HSLOC	1047-0	Pediatric respiratory critical care unit
	HSLOC	1034-8	Prenatal critical care unit
	HSLOC	1035-5	Neurology critical care and stroke unit
	HSLOC	1197-3	Pediatric critical care unit
	HSLOC	1039-7	Neonatal critical care unit [Level II/III]
	HSLOC	1040-5	Neonatal critical care unit [Level III]
	HSLOC	1042-1	Pediatric burn critical care unit
	HSLOC	1043-9	Pediatric surgical cardiothoracic critical care unit
	HSLOC	1044-7	Pediatric medical critical care unit
	HSLOC	1045-4	Pediatric medical/surgical critical care unit
	HSLOC	1046-2	Pediatric neurosurgical critical care unit
	HSLOC	1047-0	Pediatric respiratory critical care unit
	HSLOC	1048-8	Pediatric surgical critical care unit
	HSLOC	1049-6	Pediatric trauma critical care unit
	HSLOC	1036-3	Pediatric inpatient practice setting
	HSLOC	1023-1	Pediatric bone marrow transplant unit
	HSLOC	1037-1	Neonatal unit
	HSLOC	1038-9	Inpatient well baby nursery [Level I]
	HSLOC	1039-7	Neonatal critical care unit [Level II/III]
	HSLOC	1040-5	Neonatal critical care unit [Level III]
	HSLOC	1041-3	Step down neonatal ICU [Level II]

Type	Table	Value	Description
	HSLOC	1100-7	Pediatric step down unit [post-critical care]
	HSLOC	1114-8	Pediatric SCA
	HSLOC	1089-2	Pediatric hematology/oncology SCA
	HSLOC	1091-8	Pediatric dialysis SCA
	HSLOC	1093-4	Pediatric solid organ transplant SCA
	HSLOC	1197-3	Pediatric critical care unit
	HSLOC	1039-7	Neonatal critical care unit [Level II/III]
	HSLOC	1040-5	Neonatal critical care unit [Level III]
	HSLOC	1042-1	Pediatric burn critical care unit
	HSLOC	1043-9	Pediatric surgical cardiothoracic critical care unit
	HSLOC	1044-7	Pediatric medical critical care unit
	HSLOC	1045-4	Pediatric medical/surgical critical care unit
	HSLOC	1046-2	Pediatric neurosurgical critical care unit
	HSLOC	1047-0	Pediatric respiratory critical care unit
	HSLOC	1048-8	Pediatric surgical critical care unit
	HSLOC	1049-6	Pediatric trauma critical care unit
	HSLOC	1050-4	Ward
	HSLOC	1051-2	Inpatient behavioral Health/Psych Ward
	HSLOC	1075-1	Inpatient adolescent behavioral health ward
	HSLOC	1077-7	Inpatient pediatric behavioral health ward
	HSLOC	1052-0	Inpatient burn ward
	HSLOC	1078-5	Inpatient pediatric burn ward
	HSLOC	1053-8	Inpatient ear/nose/throat ward
	HSLOC	1079-3	Inpatient pediatric ear, nose, throat ward
	HSLOC	1054-6	Inpatient gastrointestinal ward
	HSLOC	1055-3	Inpatient genitourinary ward
	HSLOC	1080-1	Inpatient pediatric genitourinary ward
	HSLOC	1056-1	Inpatient gerontology ward
	HSLOC	1057-9	Inpatient gynecology ward
	HSLOC	1058-7	Labor and delivery ward
	HSLOC	1059-5	Labor, Delivery, Recovery, Postpartum suite [LDRP]
	HSLOC	1060-3	Inpatient medical ward
	HSLOC	1076-9	Inpatient pediatric medical ward
	HSLOC	1061-1	Inpatient medical/surgical ward
	HSLOC	1081-9	Inpatient pediatric medical/surgical ward
	HSLOC	1062-9	Inpatient neurology ward
	HSLOC	1082-7	Inpatient pediatric neurology ward
	HSLOC	1063-7	Inpatient neurosurgical ward
	HSLOC	1083-5	Inpatient pediatric neurosurgical ward
	HSLOC	1064-5	Inpatient ophthalmology ward
	HSLOC	1065-2	Inpatient orthopedic ward
	HSLOC	1084-3	Inpatient pediatric orthopedic ward

Type	Table	Value	Description
	HSLOC	1066-0	Inpatient orthopedic trauma ward
	HSLOC	1067-8	Inpatient plastic surgery ward
	HSLOC	1068-6	Inpatient postpartum ward
	HSLOC	1069-4	Inpatient pulmonary ward
	HSLOC	1070-2	Inpatient rehabilitation ward
	HSLOC	1085-0	Inpatient pediatric rehabilitation ward
	HSLOC	1071-0	Inpatient acute stroke ward
	HSLOC	1072-8	Inpatient surgical ward
	HSLOC	1086-8	Inpatient pediatric surgical ward
	HSLOC	1073-6	Inpatient vascular surgery ward
	HSLOC	1074-4	Pediatric ward
	HSLOC	1075-1	Inpatient adolescent behavioral health ward
	HSLOC	1076-9	Inpatient pediatric medical ward
	HSLOC	1077-7	Inpatient pediatric behavioral health ward
	HSLOC	1078-5	Inpatient pediatric burn ward
	HSLOC	1079-3	Inpatient pediatric ear, nose, throat ward
	HSLOC	1080-1	Inpatient pediatric genitourinary ward
	HSLOC	1081-9	Inpatient pediatric medical/surgical ward
	HSLOC	1082-7	Inpatient pediatric neurology ward
	HSLOC	1083-5	Inpatient pediatric neurosurgical ward
	HSLOC	1084-3	Inpatient pediatric orthopedic ward
	HSLOC	1085-0	Inpatient pediatric rehabilitation ward
	HSLOC	1086-8	Inpatient pediatric surgical ward
	HSLOC	1087-6	Specialty care area [SCA]
	HSLOC	1088-4	Hematology/Oncology SCA
	HSLOC	1089-2	Pediatric hematology/oncology SCA
	HSLOC	1090-0	Long-term acute care [LTAC]
	HSLOC	1092-6	Solid organ transplant SCA
	HSLOC	1093-4	Pediatric solid organ transplant SCA
	HSLOC	1114-8	Pediatric SCA
	HSLOC	1089-2	Pediatric hematology/oncology SCA
	HSLOC	1091-8	Pediatric dialysis SCA
	HSLOC	1093-4	Pediatric solid organ transplant SCA
	HSLOC	1198-1	Dialysis SCA
	HSLOC	1091-8	Pediatric dialysis SCA
	HSLOC	1094-2	Operating and recovery rooms
	HSLOC	1095-9	Cesarean section room/suite
	HSLOC	1096-7	Inpatient operating room/suite
	HSLOC	1097-5	Post-Anesthesia care unit/recovery Room
	HSLOC	1098-3	Step down units
	HSLOC	1099-1	Adult step down unit [post-critical care]
	HSLOC	1100-7	Pediatric step down unit [post-critical care]

Type	Table	Value	Description
	HSLOC	1101-5	Nursing or custodial care practice setting
	HSLOC	1102-3	Long-Term care unit
	HSLOC	1103-1	Long-Term care Alzheimer's unit
	HSLOC	1104-9	Long-Term care behavioral health/psych unit
	HSLOC	1105-6	Long-Term care rehabilitation unit
	HSLOC	1106-4	Assisted living area
	HSLOC	1107-2	Outpatient practice setting
	HSLOC	1108-0	Emergency department
	HSLOC	1109-8	Pediatric emergency department
	HSLOC	1110-6	Allergy clinic
	HSLOC	1111-4	Cardiac clinical practice setting
	HSLOC	1112-2	Cardiac rehabilitation center
	HSLOC	1113-0	Cardiology clinic
	HSLOC	1129-6	Pediatric cardiology clinic
	HSLOC	1115-5	Dermatology clinic
	HSLOC	1131-2	Pediatric dermatology clinic
	HSLOC	1116-3	Endocrinology clinic
	HSLOC	1132-0	Pediatric diabetes/endocrinology clinic
	HSLOC	1117-1	Family medicine clinic
	HSLOC	1118-9	Gastroenterology clinic
	HSLOC	1119-7	Pediatric gastroenterology clinic
	HSLOC	1120-5	General internal medicine clinic
	HSLOC	1121-3	Gynecology clinic
	HSLOC	1122-1	Medical genetics clinic
	HSLOC	1123-9	Neurology clinic
	HSLOC	1124-7	Opthalmology clinic
	HSLOC	1125-4	Orthopedics clinic
	HSLOC	1133-8	Pediatric orthopedic clinic
	HSLOC	1126-2	Otorhinolaryngology clinic
	HSLOC	1127-0	Pain clinic
	HSLOC	1135-3	Nephrology clinic
	HSLOC	1137-9	Pediatric nephrology clinic
	HSLOC	1140-3	Podiatry clinic
	HSLOC	1141-1	Provider's office
	HSLOC	1142-9	Rheumatology clinic
	HSLOC	1138-7	Pediatric rheumatology clinic
	HSLOC	1143-7	Surgery clinic
	HSLOC	1144-5	Wound clinic
	HSLOC	1145-2	Behavioral health clinic
	HSLOC	1146-0	Pediatric behavioral health clinic
	HSLOC	1147-8	Blood collection center
	HSLOC	1148-6	Continence clinic

Type	Table	Value	Description
	HSLOC	1149-4	Ostomy clinic
	HSLOC	1150-2	Outpatient dental clinic
	HSLOC	1130-4	Pediatric dental clinic
	HSLOC	1151-0	Occupational health clinic
	HSLOC	1152-8	Occupational therapy clinic
	HSLOC	1153-6	Outpatient hemodialysis clinic
	HSLOC	1154-4	Outpatient HIV clinic
	HSLOC	1155-1	Outpatient rehabilitation clinic
	HSLOC	1156-9	Prenatal clinic
	HSLOC	1157-7	Pulmonary clinic
	HSLOC	1158-5	Speech therapy clinic
	HSLOC	1159-3	Wound ostomy continence clinic
	HSLOC	1160-1	Urgent care center
	HSLOC	1161-9	Holistic medicine center
	HSLOC	1162-7	24-Hour observation area
	HSLOC	1199-9	Pediatric outpatient practice setting
	HSLOC	1109-8	Pediatric emergency department
	HSLOC	1128-8	Pediatric clinic
	HSLOC	1119-7	Pediatric gastroenterology clinic
	HSLOC	1129-6	Pediatric cardiology clinic
	HSLOC	1130-4	Pediatric dental clinic
	HSLOC	1131-2	Pediatric dermatology clinic
	HSLOC	1132-0	Pediatric diabetes/endocrinology clinic
	HSLOC	1133-8	Pediatric orthopedic clinic
	HSLOC	1134-6	Pediatric scoliosis clinic
	HSLOC	1136-1	Pediatric hematology/oncology clinic
	HSLOC	1137-9	Pediatric nephrology clinic
	HSLOC	1138-7	Pediatric rheumatology clinic
	HSLOC	1139-5	Well baby clinic
	HSLOC	1146-0	Pediatric behavioral health clinic
	HSLOC	1167-6	Outpatient pediatric surgery center
	HSLOC	1200-5	Hematology/oncology clinic
	HSLOC	1136-1	Pediatric hematology/oncology clinic
	HSLOC	1201-3	Scoliosis clinic
	HSLOC	1134-6	Pediatric scoliosis clinic
	HSLOC	1202-1	Physical therapy clinic
	HSLOC	1163-5	Residential treatment practice setting
	HSLOC	1164-3	Ventilator dependent unit
	HSLOC	1165-0	Inpatient hospice
	HSLOC	1166-8	Ambulatory surgical setting
	HSLOC	1167-6	Outpatient pediatric surgery center
	HSLOC	1168-4	Outpatient plastic surgery center

Type	Table	Value	Description
	HSLOC	1169-2	Outpatient surgery recovery room/post-anesthesia care unit
	HSLOC	1170-0	Institutional infirmary
	HSLOC	1171-8	Inpatient jail unit
	HSLOC	1172-6	Inpatient school infirmary
	HSLOC	1173-4	Mobile services
	HSLOC	1174-2	Mobile emergency services/EMS
	HSLOC	1175-9	Mobile MRI/CT
	HSLOC	1176-7	Mobile blood collection center
	HSLOC	1177-5	Dedicated non-clinical service location
	HSLOC	1178-3	Transport services
	HSLOC	1179-1	Pharmacy
	HSLOC	1180-9	Public area in healthcare facility
	HSLOC	1181-7	Physical plant operations center
	HSLOC	1182-5	Housekeeping/environmental services
	HSLOC	1183-3	Laundry room
	HSLOC	1184-1	Administrative area
	HSLOC	1185-8	Blood bank
	HSLOC	1186-6	Central sterile supply
	HSLOC	1187-4	Central trash area
	HSLOC	1188-2	Facility grounds
	HSLOC	1189-0	Morgue/Autopsy room
	HSLOC	1190-8	Soiled utility area
	HSLOC	1191-6	Incidental service delivery location
	HSLOC	1192-4	Patient's residence [Home care]
	HSLOC	1194-0	Home-based hospice
	HSLOC	1195-7	Blood collection [Blood drive campaign]
	HSLOC	1196-5	Specimen collection area [Community]

Appendix B – OBX-5 Element Data Type

This table describes the format of the OBX-5 element as it pertains to the data type id expressed in OBX-2

OBX-5 Data Type	Description	Usage	HL7 Data Type	Length	Seq	Note
TS	Date/Time Stamp	RE	DTM	26	5.1	Minimum acceptable precision is to the nearest day.
TX	Text	RE	TX	65536	5.1	The TX data type is used to carry string data intended for display purposes. It can contain leading blanks (space characters).
NM	Numeric Value	RE	ST	16	5.1	A numeric data type is a number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.
CWE	Identifier	RE	ST	20	5.1	
	Text	RE	ST	199	5.2	It is strongly recommend that text be sent to accompany any identifier
	Name of Coding System	C	ID	20	5.3	Required if an identifier is provided in component 1.
XAD	Street Address		ST	120	5.1	
	Other Designation		ST	120	5.2	
	City		ST	50	5.3	
	State		ST	50	5.4	FIPS 5-2
	Zip or Postal Code		ST	12	5.5	USPS
	Country		ID	3	5.6	ISO 3166-1

Appendix C – Observation Identifier Examples

Concept Code	Preferred Concept Name	HL7 Table 0396 Code
SS001	Treating Facility Identifier	PHINQUESTION
SS002	Treating Facility Location	PHINQUESTION
SS003	Facility / Visit Type	PHINQUESTION
11289-6	Body temperature	LN
11368-8	Illness or injury onset date and time	LN
59408-5	Pulse oximetry	LN
18684-1	Blood Pressure	LOINC
11328-2	Pulse Rate	LOINC
11291-2	Respiratory Rate	LOINC
399208008	Chest x-ray	SNOMED-CT
30088009	Blood Culture	SNOMED-CT
167018008	Blood Gas	SNOMED-CT
165507003	WBC result – Normal	SNOMED-CT
165509000	WBC result – Abnormal	SNOMED-CT
48310-7	Influenza A Test Result	LOINC
41495-3	Influenza B Test Result	LOINC
11283-9	ED Acuity Assessment	LOINC
8302-2	Height	LOINC
18833-4	Weight	LOINC
60621009	BMI	SNOMED-CT
449868002	Current every day smoker	SNOMED-CT
428041000124106	Current some day smoker	SNOMED-CT
8517006	Former smoker	SNOMED-CT
266919005	Never smoker	SNOMED-CT
77176002	Smoker, current status unknown	SNOMED-CT
266927001	Unknown if ever smoked	SNOMED-CT
428071000124103	Heavy tobacco smoker	SNOMED-CT
428061000124105	Light tobacco smoker	SNOMED-CT
41995-2	Most recent Hemoglobin A1C result	LOINC
397821002	Transferred to/from ICU	SNOMED-CT
77386006	Pregnancy Status	SNOMED-CT
96.0	Order for Ventilator	ICD9-Procedures
409524006	Order for airborne precautions	SNOMED-CT
21612-7	Patient Reported Age	LOINC
54094-8	Triage Notes	LOINC
8661-1	Chief Complaint	LOINC

Example OBX Segments

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OBX|1|NM|1128906^BODY TEMPERATURE^LN||101|[degF]^F^UCUM|||||F|||20110114130658
OBX|1|NM|59410-1^PULSE OXIMETRY^LN||90|%^Percent^UCUM|||||F|||20110114130658
OBX|1|TS|11368-8^ILLNESS OR INJURY ONSET DATE AND TIME^LN||20110215|||||||F|||201102171658<cr>
OBX|2|CWE|SS001^TREATING FACILITY IDENTIFIER^PHINQUESTION||NE_FACIL^1234567890^NPI|||||||F|||201102171531<cr>
OBX|2|CWE|SS003^FACILITY / VISIT TYPE^PHINQUESTION||1108-0^EMERGENCY DEPARTMENT^HSLOC|||||||F|||201102091114<cr>
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